

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

NGUYEN et al.

Appl. No. To Be Assigned

(Continuation of Appl. No. 09/852,293; Filed: May 10, 2001)

Filed: Herewith

For: **High-Performance, Superscalar-Based Computer System With Out-Of Order Instruction Execution**

Confirmation No. To Be Assigned

Art Unit: To Be Assigned

Examiner: To Be Assigned

Atty. Docket: SP015.C16

(1397.028000G)

**Information Disclosure Statement**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not

be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
  - b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
  - c. Attached is our PTO-2038 Credit Card Payment Form [OR] Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p).
- 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Attached is our PTO-2038 Credit Card Payment Form [OR] Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
  - b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a

communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

- 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- 6. A concise explanation of the relevance of the non-English language document(s) appears below:
- 7. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. 09/852,293, filed May 10, 2001, which is relied upon for an earlier filing date under 35 U.S.C. § 120. **Thus, copies of these documents are not attached.** 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

NGUYEN et al.  
Appl. No. *To Be Assigned*  
(Continuation of Appl. No. 09/852,293; Filed: May 10, 2001)

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Thomas C. Fiala  
Attorney for Applicants  
Registration No. 43,610

Date: 10/31/03

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SKGF\_DC1:194373.1

FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. SP015.C16	APPLICATION NO. To Be Assigned
		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	3,346,851	10/1967	Thornton et al.			
	AB1	3,718,912	02/1973	Hasbrouck et al.			
	AC1	3,771,138	11/1973	Celtruda et al.			
	AD1	3,789,365	01/1974	Jen et al.			
	AE1	4,034,349	07/1977	Monaco et al.			
	AF1	4,200,927	04/1980	Hughes et al.			
	AG1	4,228,495	10/1980	Bernhard et al.			
	AH1	4,296,470	10/1981	Fairchild et al.			
	AI1	4,315,314	02/1982	Russo			
	AJ1	4,410,939	10/1983	Kawakami			
	AK1	4,434,461	02/1984	Puhl			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL1	0 479 390 A2	08/1992	EP			Yes No
	AM1	0 426 393	08/1991	EP			Yes No
	AN1	0 419 105 A2	10/1990	EP			Yes No
	AO1	0 402 856	12/1990	EP			Yes No
	AP1	0 377 991 A3	12/1989	EP			Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>1</u>	8-Bit Embedded controller Handbook, Intel, 1989, pp. 1-1- 1-19 and 3-1 -3-37.
AS	<u>1</u>	Acosta, Raymond D. et al., "An Instruction Issuing Approach to Enhancing Performance in Multiple Functional Unit Processors," IEEE Transactions on Computers, Vol. C-35, No. 9, September 1986, pp. 815-828.
AT	<u>1</u>	Agerwala et al., "High Performance Reduced Instruction Set Processors," IBM Research Division, March 31, 1987, pp. 1-61.

EXAMINER	DATE CONSIDERED

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA2	4,459,657	07/1984	Murao			
	AB2	4,476,525	10/1984	Ishii			
	AC2	4,626,989	12/1986	Torii			
	AD2	4,675,806	06/1987	Uchida			
	AE2	4,714,994	12/1987	Oklobdzija et al.			
	AF2	4,722,049	01/1988	Lahti			
	AG2	4,752,873	06/1988	Shonai et al.			
	AH2	4,758,948	07/1988	May et al.			
	AI2	4,766,566	08/1988	Chuang			
	AJ2	4,807,115	02/1989	Torng			
	AK2	4,858,105	08/1989	Kuriyama et al.			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL2	0 372 751 A2	11/1989	EP			Yes No
	AM2	0 368 332 A2	05/1990	EP			Yes No
	AN2	0 354 585 A2	02/1990	EP			Yes No
	AO2	0 171 595 A2	02/1986	EP			Yes No
	AP2	0 136 179 A2	09/1984	EP			Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	2	Aiken, A. and Nicolau, A., "Perfect Pipelining: A New Loop Parallelization Technique*," pp. 221-235.
AS	2	Andrews, Distinctions Blur Between DSP Solutions, Computer Design, Vol. 28, No. 9, May 1, 1989, Littleton, Mass., pp. 86-99.
AT	2	Charlesworth, A.E., "An Approach to Scientific Array Processing: The Architectural Design of the AP-120B/FPS-164 Family," Computer, Vol. 14, September 1981, pp. 18-27.

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**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA3	4,897,810	01/1990	Nix			
	AB3	4,901,228	02/1990	Kodama			
	AC3	4,901,233	02/1990	Liptay			
	AD3	4,903,196	02/1990	Pomerene et al.			
	AE3	4,924,376	05/1990	Ooi			
	AF3	4,926,323	05/1990	Baror et al.			
	AG3	4,942,525	07/1990	Shintani et al.			
	AH3	4,985,825	01/1991	Webb, Jr. et al.			
	AI3	4,992,938	02/1991	Cocke et al.			
	AJ3	5,003,462	03/1991	Blaner et al.			
	AK3	5,101,341	03/1992	Circella et al.			

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL3	2 575 564	12/1985	FR			Yes No
	AM3	2 011 682	11/1979	GB			Yes No
	AN3	61-95447	06/1986	JP			Yes No
	AO3	2-278337	11/1990	JP			Yes No
	AP3	3-137729	06/1991	JP			Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	3	Colwell et al., "A VLIW Architecture for a Trace Scheduling Compiler," Proceedings of the 2 <sup>nd</sup> International Conference on Architectural Support for Programming Languages and Operating Systems, October 1987, pp. 180-192.
AS	3	Foster et al., "Percolation of Code to Enhance Parallel Dispatching and Execution," IEEE Trans. On Computers, December 1971, pp. 1411-1415.
AT	3	Goodman, J.R. and Hsu, W., "Code Scheduling and Register Allocation in Large Basic Blocks," ACM, 1988, pp. 442-452.

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**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA4	5,127,091	02/1995	Horst			
	AB4	5,129,067	07/1992	Johnson			
	AC4	5,134,561	07/1992	Liptay			
	AD4	5,155,843	10/1992	Stamm et al.			
	AE4	5,187,796	02/1993	Wang et al.			
	AF4	5,226,126	07/1993	McFarland et al.			
	AG4	5,226,170	07/1993	Rubinfeld			
	AH4	5,230,068	07/1993	Van Dyke et al.			
	AI4	5,355,460	10/1994	Eickenmeyer et al.			
	AJ4	5,442,757	08/1995	McFarland et al.			
	AK4	5,461,715	10/1995	Matsuo et al.			

**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL4	3-147134	06/1991	JP			Yes No
	AM4	2-22736	01/1990	JP			Yes No
	AN4	2-87229	03/1990	JP			Yes No
	AO4	3-35322	02/1991	JP			Yes No
	AP4	64-36366	02/1989	JP			Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	4	Gross et al., "Optimizing Delayed Branches," Proceedings of the 5 <sup>th</sup> Annual Workshop on Microprogramming, October 5-7, 1982, pp. 114-120.
AS	4	Groves, R.D. and Oehler, R., "An IBM Second Generation RISC Processor Architecture," IEEE, 1989, pp. 134-137.
AT	4	Bakoglu et al., "IBM Second-Generation RISC Machine Organization," 1990, IEEE, pp. 173-178.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA5	5,487,156	01/1996	Popescu et al.			
	AB5	5,488,729	01/1996	Vesegna et al.			
	AC5	5,539,911	07/1996	Nguyen et al.			
	AD5	5,561,776	10/1996	Popescu et al.			
	AE5	5,574,927	11/1996	Scantlin			
	AF5	5,592,636	01/1997	Popescu et al.			
	AG5	5,625,837	04/1997	Popescu et al.			
	AH5	5,627,983	05/1997	Popescu et al.			
	AI5	5,651,125	07/1997	Witt et al.			
	AJ5	5,689,720	11/1997	Nguyen et al.			
	AK5	5,708,841	01/1998	Popescu et al.			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL5	2-130634	05/1990	Japan			Yes No
	AM5						Yes No
	AN5						Yes No
	AO5						Yes No
	AP5						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	5	H. Nakano et al., "A 80 Mflops 64-bit Microprocessor for Parallel Computer," 1991, IEEE, pp. 15.2.1-15.2.4.
AS	5	Hennessy et al., Computer Architecture: A Quantitative Approach, Morgan Kaufman Publishers, Inc., 1990 (in its entirety).
AT	5	Horst, R.W. et al., "Multiple Instruction Issue in the NonStop Cyclone Processor," IEEE, 1990, pp. 216-226.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA6	5,768,575	06/1998	McFarland et al.			
	AB6	5,778,210	07/1998	Henstrom et al.			
	AC6	5,797,025	08/1998	Popescu et al.			
	AD6	5,832,205	11/1998	Kelly et al.			
	AE6	5,832,293	11/1998	Popescu et al.			
	AF6	5,961,629	10/1999	Nguyen et al.			
	AG6	6,038,654	03/2000	Nguyen et al.			
	AH6	6,092,181	07/2000	Nguyen et al.			
	AI6	6,101,594	08/2000	Nguyen et al.			
	AJ6	6,128,723	10/2000	Nguyen et al.			
	AK6	5,233,694	08/1993	Hotta et al.			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL6						Yes No
	AM6						Yes No
	AN6						Yes No
	AO6						Yes No
	AP6						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	6	Hwu et al., "HPSm, a High Performance Restricted Data Flow Architecture Having Minimal Functionality," Proceedings from ISCA-13, Tokyo, Japan, June 2-5, 1986, pp. 297-306.
AS	6	Hwu et al., "Checkpoint Repair for High-Performance Out-of-Order Execution Machines," IEEE Trans. On Computers, Vol. C-36, NO. 12, December 1987, pp. 1496-1514.
AT	6	Hwu et al., "Exploiting Parallel Microprocessor Microarchitectures with a Compiler Code Generator," Proceedings of the 15 <sup>th</sup> Annual Symposium on Computer Architecture, June 1988, pp. 45-53.

EXAMINER

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA7						
	AB7						
	AC7						
	AD7						
	AE7						
	AF7						
	AG7						
	AH7						
	AI7						
	AJ7						
	AK7						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL7						Yes No
	AM7						Yes No
	AN7						Yes No
	AO7						Yes No
	AP7						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	7	IBM Journal of Research and Development, Vol. 34, No. 1, January 1990, pp. 1-70.				
AS	7	IBM Technical Disclosure Bulletin, Overlap of Store Multiple Operation With Succeeding Operations through Second Set of General Purpose Registers, Voll 28, No. 6, November 1989, New York, NY, pp. 2727-2728.				
AT	7	Jelemensky, New Microcomputer Features Advanced Hardware For Real-Time Control Applications, Electro Conference Record, Vol. 14, April 11, 1989, Los Angeles, CA, pp. 511-519.				

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U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA8						
	AB8						
	AC8						
	AD8						
	AE8						
	AF8						
	AG8						
	AH8						
	AI8						
	AJ8						
	AK8						

FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL8	.					Yes No
	AM8						Yes No
	AN8						Yes No
	AO8						Yes No
	AP8						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>8</u>	Johnson, William M., Super-Scalar Processor Design, (Dissertation), copyright 1989, 134 pages.
AS	<u>8</u>	Johnson, William M., Super-Scalar Processor Design, Prentice-Hall, Inc., 1991 (in its entirety).
AT	<u>8</u>	Jouppi, N.H., "Integration and Packaging Plateaus of Processor Performance," IEEE, 1989, pp. 229-232.

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	AA9						
	AB9						
	AC9						
	AD9						
	AE9						
	AF9						
	AG9						
	AH9						
	AI9						
	AJ9						
	AK9						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL9						Yes No
	AM9						Yes No
	AN9						Yes No
	AO9						Yes No
	AP9						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	9	Jouppi, N.P., "The Nonuniform Distribution of Instruction-Level and Machine Parallelism and Its Effect on Performance," IEEE Transactions on Computers, Vol. 38, No. 12, December 1989, pp. 1645-1658.
AS	9	Jouppi et al., "Available Instruction-Level Parallelism for Superscalar and Superpipelined Machines," Proceedings of the 3 <sup>rd</sup> International Conference on Architectural Support for Programming Languages and Operating Systems, April 1989, pp. 272-282.
AT	9	Keller, R.M., "Look-Ahead Processors," Computing Surveys, Vol. 7, No. 4, December 1975, pp. 177-195.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA10						
	AB10						
	AC10						
	AD10						
	AE10						
	AF10						
	AG10						
	AH10						
	AI10						
	AJ10						
	AK10						

**FOREIGN PATENT DOCUMENTS**

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	AL10						Yes No
	AM10						Yes No
	AN10						Yes No
	AO10						Yes No
	AP10						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>10</u>	Lam, M.S., "Instruction Scheduling For Superscalar Architectures," Annu. Rev. Comput. Sci., Vol. 4, 1990, pp. 173-201.
AS	<u>10</u>	Lee, Ruby B., "Precision Architecture," COMPUTER, January 1989, pp. 78-91.
AT	<u>10</u>	Melear, C., Motorola, Inc., The Design of the 88000 RISC Family, IEEE MICRO, Vol. 9, No. 2, April 1989, Los Alamitos, CA, pp. 26-38.

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA11						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL11						Yes No
	AM11						Yes No
	AN11						Yes No
	AO11						Yes No
	AP11						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>11</u>	Murakami, K. et al., "SIMP (Single Instruction Stream/Multiple Instruction Pipelining): A Novel High-Speed Single-Processor Architecture," ACM, 1989, pp. 78-85.
AS	<u>11</u>	Odnert, D. et al., "Architecture and Compiler Enhancements for PA-RISC Workstations," Proceedings from IEEE Compcon, February 25-March 1, 1991, San Francisco, CA, pp. 214-218.
AT	<u>11</u>	Patent Abstracts of Japan, Vol. 010, No. 089, April 1986, & JP, A, 60 225 943 (Hitachi Seisakusho K K) November 11, 1985.

EXAMINER

DATE CONSIDERED

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. SP015.C16		APPLICATION NO. To Be Assigned		
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		FILING DATE Herewith		GROUP To be assigned		

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA12						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL12						Yes No
	AM12						Yes No
	AN12						Yes No
	AO12						Yes No
	AP12						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>12</u>	Patt et al., "Critical Issues Regarding HPS, A High Performance Microarchitecture," Proceedings of the 18 <sup>th</sup> Annual Workshop on Microprogramming, December 1985, pp. 109-116.
AS	<u>12</u>	Patt et al., "HPS, A New Microarchitecture: Rationale and Introduction," Proceedings of the 18 <sup>th</sup> Annual Workshop on Microprogramming, December 1985, pp. 103-108.
AT	<u>12</u>	Pleszkun et al., "The Performance Potential of Multiple Functional Unit Processors," Proceedings of the 15 <sup>th</sup> Annual Symposium on Computer Architecture, June 1988, pp. 37-44.

EXAMINER	DATE CONSIDERED
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		APPLICANT Nguyen et al.			
		FILING DATE Herewith		GROUP To be assigned	

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL13						Yes No
	AM13						Yes No
	AN13						Yes No
	AO13						Yes No
	AP13						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

	AR	<u>13</u>	Pleszkun et al., "WISQ: A Restartable Architecture Using Queues," Proceedings of the 14 <sup>th</sup> International Symposium on Computer Architecture, June 1987, pp. 290-299.
	AS	<u>13</u>	Popescu et al., The Metaflow Architecture, Metaflow Technologies, Inc., June 1991(in its entirety).
	AT	<u>13</u>	S. McGeady, "The i960A Superscalar Implementation of the 80960 Architecture," IEEE, 1990, pp. 232-240.

EXAMINER	DATE CONSIDERED
<b>EXAMINER:</b> Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL14						Yes No
	AM14						Yes No
	AN14						Yes No
	AO14						Yes No
	AP14						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>14</u>	Smith et al., Implementation Precise Interrupts in Pipelined Processors, IEEE Transactions on Computers, Vol. 37, No. 5, May 1988, New York, NY, p. 562, 573.
AS	<u>14</u>	Smith et al., "Implementation of Precise Interrupts in Pipelined Process," Proceedings of the 12 <sup>th</sup> Annual International Symposium on Computer Architecture, June 1985, pp. 36-44.
AT	<u>14</u>	Smith et al., "Limits on Multiple Instruction Issue," Proceedings of the 3 <sup>rd</sup> International Conference on Architectural Support for Programming Languages and Operating Systems, April 1989, pp. 290-302.

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**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL15						Yes No
	AM15						Yes No
	AN15						Yes No
	AO15						Yes No
	AP15						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>15</u>	Smith, M.D. et al., "Boosting Beyond Static Scheduling in a Superscalar Processor," IEEE, 1990, pp. 344-354.
AS	<u>15</u>	Sohi, Gurindar S. and Sriram Vajapeyam, "Instruction Issue Logic for High-Performance, Interruptable Pipelined Processors," Conference Proceedings of the 14 <sup>th</sup> Annual International Symposium on Computer Architecture, June 2-5, 1987, pp. 27-34.
AT	<u>15</u>	Thornton, J.E., Design of a Computer: The Control Data 6600, Control Data Corporation, 1970, pp. 58-140.

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**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA16						
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL16						Yes No
	AM16						Yes No
	AN16						Yes No
	AO16						Yes No
	AP16						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>16</u>	Tjaden et al., "Detection and Parallel Execution of Independent Instructions," IEEE Trans. On Computers, Vol. C-19, No. 10, October 1970, pp. 889-895.
AS	<u>16</u>	Tjaden et al., "Representation of Concurrency with Ordering Matrices," IEEE Trans. On Computers, Vol. C-22, No. 8, August 1973, pp. 752-761.
AT	<u>16</u>	Tjaden, Representation and Detection of Concurrency Using Ordering Matrices, (Dissertation), 1972, pp. 1-199.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL17						Yes No
	AM17						Yes No
	AN17						Yes No
	AO17						Yes No
	AP17						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>17</u>	Tomasulo, R.M., "An Efficient Algorithm for Exploiting Multiple Arithmetic Units," IBM Journal, Vol. 11, January 1967, pp. 25-33.
AS	<u>17</u>	Uht, A.K., "An Efficient Hardware Algorithm to Extract Concurrency From General-Purpose Code," Proceedings of the 19 <sup>th</sup> Annual Hawaii International Conference on System Sciences, 1986, pp. 41-50.
AT	<u>17</u>	Wedig, R.G., Detection of Concurrency in Directly Executed Language Instruction Streams, (Dissertation), June 1982, pp. 1-179.

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**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA18						
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL18						Yes No
	AM18						Yes No
	AN18						Yes No
	AO18						Yes No
	AP18						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>18</u>	Weiss, R., Third-Generation RISC Processors, On Special Report, March 30, 1992, pp. 96-108.
AS	<u>18</u>	Weiss et al., "Instruction Issue Logic in Pipelined Supercomputers," Reprinted from IEEE Trans. On Computers, Vol. C-33, No. 11, November 1984, pp. 1013-1022.
AT	<u>18</u>	English Language Translation of Japanese Patent Appl. No. 61-95447, published May 14, 1986, 15 pages.

EXAMINER	DATE CONSIDERED
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA19						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL19						Yes No
	AM19						Yes No
	AN19						Yes No
	AO19						Yes No
	AP19						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>19</u>	English Language Translation of Japanese Patent Appl. No. 2-278337, published November 14, 1990, 20 pages.
AS	<u>19</u>	English Language Translation of Japanese Patent Appl. No. 3-137729, published June 12, 1991, 7 pages.
AT	<u>19</u>	English Language Translation of Japanese Patent Appl. No. 3-147134, published June 24, 1991, 18 pages.

EXAMINER	DATE CONSIDERED
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FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. SP015.C16	APPLICATION NO. To Be Assigned
		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA20						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL20						Yes No
	AM20						Yes No
	AN20						Yes No
	AO20						Yes No
	AP20						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>20</u>	Kuga Morio et al., "Performance Evaluation of the Superscalar Processor "SIMP" based on the SIMP (Single Instruction Stream/Multiple Instruction Pipeline) Architecture," Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, 1990, pp. 337-344.
AS	<u>20</u>	English Language Translation, Kuga Morio et al., "Performance Evaluation of the Superscalar Processor "SIMP" based on the SIMP (Single Instruction Stream/Multiple Instruction Pipeline) Architecture," Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, 1990, pp. 337-344, (Document AR20).
AT	<u>20</u>	Kuga Morihiro et al., "Low-Level Parallel Processing Algorithm for the SIMP Processor Prototype," Department of Information Systems, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Vol. 30, No. 12, Dec. 1989, pp. 1603-1611.

EXAMINER

DATE CONSIDERED

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FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. SP015.C16	APPLICATION NO. To Be Assigned
		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL21						Yes No
	AM21						Yes No
	AN21						Yes No
	AO21						Yes No
	AP21						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>21</u>	English Language Translation, Kuga Morihiro et al., "Low-Level Parallel Processing Algorithm for the SIMD Processor Prototype," Department of Information Systems, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Vol. 30, No. 12, Dec. 1989, pp. 1603-1611, (Document AT20).
AS	<u>21</u>	US Application 09/336,589, Senter Cheryl et al., June 21, 1999.
AT	<u>21</u>	Colwell et al., "A VLIW Architecture for a Trace Scheduling Compiler," Proceedings of the 2 <sup>nd</sup> International Conference on Architectural Support for Programming Languages and Operating Systems, October 5-8, 1987, California.

EXAMINER	DATE CONSIDERED
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL22						Yes No
	AM22						Yes No
	AN22						Yes No
	AO22						Yes No
	AP22						

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>22</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-145123, mailed June 26, 2002, 2 pages.
AS	<u>22</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-145124, mailed June 26, 2002, 2 pages.
AT	<u>22</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-145125, mailed June 26, 2002, 2 pages.

EXAMINER	DATE CONSIDERED
<b>EXAMINER:</b> Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	

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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL23						Yes No
	AM23						Yes No
	AN23						Yes No
	AO23						Yes No
	AP23						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>23</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-145126, mailed July 3, 2002, 2 pages.
AS	<u>23</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-146442, mailed July 3, 2002, 2 pages.
AT	<u>23</u>	Notification of Reason for Refusal for Japanese Patent Application No. 2000-146443, mailed July 3, 2002, 2 pages.

EXAMINER

DATE CONSIDERED

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		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA24						
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL24						Yes No
	AM24						Yes No
	AN24						Yes No
	AO24						Yes No
	AP24						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>24</u>	English-language translation of Japanese Laid-Open Patent Application No. H02-22736, (January 25, 1990 - date of publication), 10 pages.				
AS	<u>24</u>	English-language translation of Japanese Laid-Open Patent Application No. H02-87229, (March 28, 1990 - date of publication), 5 pages.				
AT	<u>24</u>	English-language translation of Notification of Reason for Refusal for Japanese Patent Application No. 2000-145123, mailed June 26, 2002, 3 pages.				

EXAMINER

DATE CONSIDERED

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449 <b>INFORMATION DISCLOSURE STATEMENT</b>		ATTY. DOCKET NO. SP015.C16	APPLICATION NO. To Be Assigned
		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA25						
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL25						Yes No
	AM25						Yes No
	AN25						Yes No
	AO25						Yes No
	AP25						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>25</u>	English-language translation for Notification of Refusal for Japanese Patent Application No. 2000-145124, mailed June 26, 2002, 3 pages.
AS	<u>25</u>	English-language translation for Notification of Refusal for Japanese Patent Application No. 2000-145125, mailed June 26, 2002, 4 pages.
AT	<u>25</u>	English-language translation for Notification of Refusal for Japanese Patent Application No. 2000-145126, mailed July 3, 2002, 3 pages.

EXAMINER	DATE CONSIDERED
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**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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		APPLICANT Nguyen et al.	
		FILING DATE Herewith	GROUP To be assigned

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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**FOREIGN PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL26						Yes No
	AM26						Yes No
	AN26						Yes No
	AO26						Yes No
	AP26						Yes No

**OTHER (Including Author, Title, Date, Pertinent Pages, etc.)**

AR	<u>26</u>	English-language translation for Notification of Reason for Refusal for Japanese Patent Application No. 2000-146442, mailed July 3, 2002, 4 pages.
AS	<u>26</u>	English-language translation for Notification of Reason for Refusal for Japanese Patent Application No. 2000-146443, mailed July 3, 2002, 4 pages.
AT	<u>26</u>	Kuga Morihiro et al., "Low-Level Parallel Processing Algorithms for the "Shinpu" Processor Based on the SIMD (Single Instruction Stream / Multiple Instruction Pipelining) Method, Department of Information System, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Vol. 30, No. 12, December 1989, pages 1603-1611.

EXAMINER

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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

FORM PTO-1449 <u>INFORMATION DISCLOSURE STATEMENT</u>		ATTY. DOCKET NO. SP015.C16		APPLICATION NO. To Be Assigned	
		APPLICANT Nguyen et al.			
		FILING DATE Herewith		GROUP To be assigned	

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA27						
	AB27						
	AC27						
	AD27						
	AE27						
	AF27						
	AG27						
	AH27						
	AI27						
	AJ27						
	AK27						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL27						Yes No
	AM27						Yes No
	AN27						Yes No
	AO27						Yes No
	AP27						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>27</u>	English-language translation, Kuga Morihiro et al., "Low-Level Parallel Processing Algorithms for the "Shinpu" Processor Based on the SIMD (Single Instruction Stream / Multiple Instruction Pipelining) Method, Department of Information System, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Vol. 30, No. 12, December 1989, pages 1603-1624.
AS	<u>27</u>	Final Rejection from Japanese Patent Appl. No. 502150, 1 page, (July 16, 2002)
AT	<u>27</u>	English translation of Final Rejection from Japanese Patent Appl. No. 502150, 1 page, (July 16, 2002)

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA28						
	AB28						
	AC28						
	AD28						
	AE28						
	AF28						
	AG28						
	AH28						
	AI28						
	AJ28						
	AK28						

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL28						Yes No
	AM28						Yes No
	AN28						Yes No
	AO28						Yes No
	AP28						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

AR	<u>28</u>	English translation of Japanese Laid Open Patent Appl. No. H02-130634, (May 18, 1990 - date of publication), 56 pages.
AS	<u>28</u>	
AT	<u>28</u>	

EXAMINER

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